



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|------------------------------|---------------------|------------------|
| 10/731,177 | 12/09/2003 | J. Christopher Matayabas JR. | 42.P16901D | 4861 |

7590

08/15/2005

Todd M. Becker
BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP
Seventh Floor
12400 Wilshire Boulevard
Los Angeles, CA 90025-1026

| |
|----------|
| EXAMINER |
|----------|

GEYER, SCOTT B

| | |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
|----------|--------------|

2812

DATE MAILED: 08/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/731,177 | MATAYABAS ET AL. | |
| | Examiner | Art Unit | |
| | Scott Geyer | 2812 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 20-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 20-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>061305</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of claims 20-37 in the reply filed on June 13th, 2005 is acknowledged.

Information Disclosure Statement

The references cited within the IDS document received on June 13th, 2005 have been considered.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 28-37 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 28 recites the limitation "the wires" in lines 4 and 6. There is insufficient antecedent basis for this limitation in the claim. Since claims 29-37 are dependent upon claim 28, and contain all the limitations of claim 28, they are also rejected.

Applicant note: claim 28 would be allowable if applicant overcomes the rejection of claim 28 with a proper amendment.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 20, 21, 23 and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by Akram et al. (6,252,308).

As to **claims 20, 21, 23 and 27**, Akram et al. teach a die (i.e. an integrated circuit) 902 connected to a substrate 608 with wires. The wires and a portion of the die are encapsulated by an electrically insulating material (i.e. barrier glob top) 626, as seen in figure 9. A thermally conductive material (i.e. heat dissipating glob top) 802 is disposed over the first encapsulant, the wires and the chip. The encapsulants are applied to the wires and the die by dispensing.

//

Claims 20, 21, 23 and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by Lin (5,436,203).

As to **claims 20, 21, 23 and 27**, Lin teaches a die (i.e. an integrated circuit) 32 connected to a substrate 12 with wires 36. The wires 36 and the die 32 are encapsulated by an electrically insulating material encapsulant 38, as seen in figure 4. A thermally conductive material encapsulant 42 is disposed over the first encapsulant 38, the wires 36 and the chip 32. The encapsulants are applied to the wires and the die by dispensing.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 22 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akram et al. (6,252,308) as applied to claim 21 and 23 above, and further in view of Schmidt et al. (4,843,036).

As to **claims 22 and 24**, Akram et al. teach all of the limitations as noted above for claims 21 and 23, except for curing of the encapsulant. However, Schmidt et al. teach UV curing of an encapsulant as shown in figure 4. Therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the method of Akram et al. with UV curing of an encapsulant as taught by Schmidt et al. so as to quickly and economically cure the encapsulant.

//

Claims 22 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin (5,436,203) as applied to claim 21 and 23 above, and further in view of Schmidt et al. (4,843,036).

As to **claims 22 and 24**, Lin teaches all of the limitations as noted above for claims 21 and 23, except for curing of the encapsulant. However, Schmidt et al. teach UV curing of an encapsulant as shown in figure 4. Therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify

Art Unit: 2812

the method of Lin with UV curing of an encapsulant as taught by Schmidt et al. so as to quickly and economically cure the encapsulant.

//

Claims 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akram et al. (6,252,308) as applied to claim 20 above, and further in view of Lebonheur et al. (6,617,683).

As to **claims 25 and 26**, Akram et al. teach all of the limitations as noted above for claim 20, except for the thermally conductive material comprising a curable resin, a cross-linker, a catalyst and a metal filler. However, Lebonheur et al. teach a thermally conductive material comprising a curable resin, a cross-linking agent, a catalyst, a metal filler such as aluminum or silver (see column 3, lines 23-67, et seq.). Therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the method of Akram et al. with a thermally conductive material as taught by Lebonheur et al. so as to form a stable material capable of dissipating heat from the integrated circuit device.

//

Claims 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin (5,436,203) as applied to claim 20 above, and further in view of Lebonheur et al. (6,617,683).

As to **claims 25 and 26**, Lin teaches all of the limitations as noted above for claim 20, except for the thermally conductive material comprising a curable resin, a cross-linker, a catalyst and a metal filler. However, Lebonheur et al. teach a thermally

Art Unit: 2812

conductive material comprising a curable resin, a cross-linking agent, a catalyst, a metal filler such as aluminum or silver (see column 3, lines 23-67, et seq.). Therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the method of Lin with a thermally conductive material as taught by Lebonheur et al. so as to form a stable material capable of dissipating heat from the integrated circuit device.

Conclusion

The following reference is cited as being particularly related to the applicant's invention: Feathery et al. (6,368,899 B1).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott Geyer whose telephone number is (571) 272-1958. The examiner can normally be reached on weekdays, between 10:00am - 6:30pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Lebentritt can be reached on (571) 272-1873. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

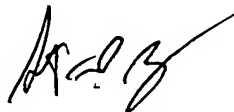
Application/Control Number: 10/731,177

Page 7

Art Unit: 2812

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).



0/12/05

Scott Geyer
August 12, 2005